

**STATE FOREST LAND
ENVIRONMENTAL CHECKLIST**

Purpose of Checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for Applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can. *Questions in italics are supplemental to Ecology's standard environmental checklist. They have been added by the DNR to assist in the review of state forest land proposals. Adjacency and landscape/watershed-administrative-unit (WAU) maps for this proposal are available on the DNR internet website at <http://www.dnr.wa.gov> under "SEPA Center." These maps may also be reviewed at the DNR regional office responsible for the proposal. This checklist is to be used for SEPA evaluation of state forest land activities.*

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later. *All of the questions are intended to address the complete proposal as described by your response to question A-11. The proposal acres in question A-11 may cover a larger area than the forest practice application acres, or the actual timber sale acres.*

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NON PROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer" and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable:

Timber Sale Name: **Rosehip Hardwood** *Agreement #:* **30-76200**

2. Name of applicant: **Department of Natural Resources**

3. Address and phone number of applicant and contact person: **Candace Johnson
Northwest Region
919 N. Township St.
Sedro-Woolley, WA. 98284
(360) 856-3500**

4. Date checklist prepared: **March 19, 2004**

5. Agency requesting checklist: **Department of Natural Resources**

6. Proposed timing or schedule (including phasing, if applicable):

- a. Auction Date:* **December 2004**
b. Planned contract end date (but may be extended): **September 30, 2005**
c. Phasing: **none**

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

Timber Sale

- a. Site preparation:* **The harvest unit may be aerial treated in the late summer/early fall following harvest.**
b. Regeneration Method: **Hand planting with conifer seedlings.**
c. Vegetation Management: **Hardwood seedlings may be slashed 3-5 years after harvest and again 7-10 years after harvest.**
d. Thinning: **The harvest unit may be pre-commercially thinned 12-15 years after harvest and commercially thinned 25-40 years after harvest.**

Roads: The first 776 feet of newly constructed road will remain open and possibly be used for a future timber sale. The exact timing of this potential sale is not known.

Rock Pits and/or Sale Continued use of both rock pits for future timber sale road construction and maintenance activities.

Other: None planned.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

- ☒ 303 (d) – listed water body in WAU: ☒temp ☐sediment ☐completed TMDL (total maximum daily load):
A total of 7 stream segments within the WAU are listed as 303(d) water bodies. For details please see <http://www.ecv.wa.gov/programs/wq/303d>
☐Landscape plan:
☒Watershed analysis: Hansen Creek Watershed Analysis available at NW region office.
☒Interdisciplinary team (ID Team) report: Attached to forest practice application
☒Road design plan: Available at NW region office.
☐Wildlife report:
☐Geotechnical report:
☐Other specialist report(s):
☐Memorandum of understanding (sportsmen’s groups, neighborhood associations, tribes, etc.):
☒Rock pit plan: Available at NW region office.
☒Other: Forest Resources Plan Environmental Impact Statement (1992), Final Habitat Conservation Plan (1997), State Soil Survey (1992).

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. None known

10. List any government approvals or permits that will be needed for your proposal, if known.

- ☒HPA ☐Burning permit ☐Shoreline permit ☒Incidental take permit ☒FPA # _____ ☐Other:

11. Give brief, complete description of our proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include specific information on project description.)

- a. Complete proposal description:
Approximately 120 acres were evaluated for harvest with this proposal. About 61 acres will remain unharvested in RMZ’s, potentially unstable slopes, and leave tree areas. About 14 acres may be harvested by helicopter at some time in the future. The remaining 46 acres will be harvested with this proposal; 1.5 acres of which will be cleared for new road construction. The remaining 44 acres will be harvested and replanted with conifer seedlings.
- b. Timber stand description pre-harvest (include major timber species and origin date), type of harvest, overall unit objectives.
The timber proposed for harvest is a hardwood dominated stand that seeded in naturally about 56 years ago after the area had been logged and burned by wildfire. Red alder is the most common species with about 82 trees per acre > 12” diameter at breast height (dbh). The majority of these trees are 12” to 18” dbh and 80-90’ tall, but there are some individual trees up to 27” dbh and 95’ tall. There are also about 2 bitter cherry, 3 bigleaf maple, and 5 cottonwood per acre scattered sporadically throughout the stand, as well as a few paper birch. The birch and cherry only reach sizes of 13” dbh and 80’ tall, but maple can be found up to 24” dbh and 80’ tall, and cottonwood grow up to 41” dbh and 150’ tall.
- There is also an average of about 24 conifer trees per acre > 12” dbh in the stand, mostly in small scattered clumps, but also a few scattered individual trees. The clumps are a mixture of Douglas fir up to 40” dbh and 150’ tall, western hemlock up to 24” dbh and 119’ tall, and western redcedar up to 49” dbh and 139’ tall. A few of the larger conifer are also found individually scattered throughout the stand. There are also 80 stems per acre of western hemlock and western redcedar < 12” dbh scattered throughout the stand.
- The proposed harvest will be a regeneration harvest with clumped leave trees. An average of 8 leave trees per acre will be left. Objectives for the harvest unit are as follows:
- 1) Generate revenue for the Skagit County Forest Board Trust.
 - 2) Protect water quality of streams in the area.
 - 3) Maintain species diversity currently found on site.
- c. Road activity summary. See also forest practice application (FPA) for maps and more details.

Type of Activity	How Many	Length (feet) (Estimated)	Acres (Estimated)	Fish Barrier Removals (#)
Construction		4865	1.8	0
Reconstruction		--		
Abandonment		4089	1.5	
Bridge Install/Replace	2			
Culvert Install/Replace (fish)	0			
Culvert Install/Replace (no fish)	13			

12. Location of proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist. (See timber sale map. See also color landscape/WAU map on the DNR website <http://www.dnr.wa.gov> under “SEPA Center.”)

- a. Legal description: Harvest unit and road construction: Section 32, Township 36 North, Range 5 East.
Rock pits: Rip-rap and 3” minus ballast will come from an existing rock pit in Section 31 of Township 37 North, Range 5East. Gravel ballast will come from an existing rock pit in Section 7 of Township 36 North, Range 5 East.
- b. Distance and direction from nearest town (include road names):The sale is located approximately 7 miles north and east of Sedro-Woolley. It is accessed by State Highway 20, Fruitdale road, and private logging roads.

c. Identify the watershed administrative unit (WAU), the WAU Sub-basin(s), and acres. (See also landscape/WAU map on DNR website <http://www.dnr.wa.gov> under “ SEPA Center.”)

WAU Name	WAU Acres	DNR Managed Acres	Proposal Acres
Hansen Creek	28,432	4,279	46
Sub-basin Name	Sub-basin Acres	DNR Managed Acres	Proposal Acres
Hansen Creek	5,010	486	46

13. Discuss any known future activities not associated with this proposal that may result in a cumulative change in the environment when combined with the past and current proposal(s). (See digital ortho-photos for WAU and adjacency maps on DNR website <http://www.dnr.wa.gov> under “SEPA Center” for a broader landscape perspective.)
This proposal is located on the south flank of Lyman Hill within the Hansen Creek WAU. All streams in the vicinity are tributary to the Skagit River. There is a completed watershed analysis for the Hansen Creek WAU. This analysis reports that, of the 28,432 acres within the WAU, approximately ½ of the area is managed as commercial forest land, while the other ½ consists of agricultural land and rural residential development.

The table below reports recent timber harvest activity within the last seven years, on Department lands, as well as future expected timber harvests on Department lands for the next year. The same chart also reports recent past harvesting on private lands, but no attempt was made to predict future timber harvests on private land. Data for Department and private harvests were compiled from the Department’s GIS database and Planning and Tracking system, as of November 2003. The attached WAU map created in August 10, 2004 shows the location of Department and private harvest activity.

NAME OF WAU	DNR ACRES EVEN-AGED HARVESTED IN LAST 7 YEARS + SOLD TIMBER SALES NOT HARVESTED YET (WILL BE EVEN AGED HARVESTING)	DNR ACRES UNEVEN-AGED HARVESTED IN LAST 7 YEARS	DNR EXPECTED HARVEST ACRES WITHIN THE NEXT YEAR	PRIVATE ACRES EVEN-AGED HARVESTED IN LAST 7 YEARS	PRIVATE ACRES UNEVEN-AGED HARVESTED IN LAST 7 YEARS
Hansen Creek	1052	0	77	2526	1608

The watershed analysis lists the following impacts to watershed resources as a result of past timber harvesting: elevated stream temperatures due to lack of riparian forest, lack of coarse woody debris in streams, and high sediment supply in streams. Although the watershed has been extensively logged, the analysis determined that the WAU was not sensitive to increased peak flows since a relatively low percentage of the WAU is in the rain-on-snow zone.

This timber sale has been designed to mitigate potential impacts described above and is not expected to result in significant cumulative impacts to watershed resources. The Rosehip Hardwood timber sale, as well as other recently sold and planned Department sales in the Hansen Creek WAU, have or will meet or exceed the requirements of watershed analysis prescriptions relating to protection from mass wasting, reducing surface erosion from roads, and retaining timber in riparian areas to provide adequate shade and down woody debris recruitment. All road construction will meet or exceed watershed analysis prescriptions in the Hansen Creek WAU for requirements relating to revegetation of exposed soils, immediate ballasting of newly pioneered subgrade and the size and spacing of drainage structures to control runoff.

The Department’s HCP outlines strategies to protect all Federally listed threatened and endangered species, and species that are in danger of being listed in the future, as well as uncommon habitat types found on forest lands in western Washington. HCP prescribed riparian and slope stability buffers intended to protect salmon and trout habitat were applied to the Rosehip Hardwood timber sale and will be applied to all future sales in the vicinity. HCP riparian and slope stability buffers, ranging from 25 to 195 feet address the stream shading and down woody debris recruitment issues raised in the Hansen Creek WAU.

The HCP identifies large, structurally unique trees and snags as uncommon habitats that need to be protected. An average of 8 trees per acre will be left after harvest on the Rosehip Hardwood timber sale. These trees will function for future snag and large structurally unique tree recruitment. Future timber sales in the block will follow HCP strategies regarding snag, and large structurally unique tree retention. No particular species or habitats designated for protection by the HCP are found in the vicinity of the proposal.

The Rosehip Hardwood timber sale, in combination with future expected sales in the WAU, could cause changes to the viewshed from State Highway 20 in the vicinity of Sedro Woolley and from I-5 in the vicinity of Burlington. HCP strategies for leave tree retention and riparian and slope stability buffers will help to mitigate these impacts. No other mitigation is planned.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (check one):
☐Flat, ☐Rolling, ☐Hilly, ☐Steep Slopes, ☐Mountainous, ☒Other: The proposal is located on ground that includes: flat ground, gentle slopes, and steep slopes.

- 1)

General description of the WAU or sub-basin(s) (landforms, climate, elevations, and forest vegetation zone).

The Hansen Creek WAU is located in Townships 35 and 36 North, Ranges 5 and 6 East in Skagit County. The WAU consists of 28,432 acres on the south flank of Lyman Hill and the west edge of Josephine Ridge. Elevations range from near sea level to 4,046 feet on Lyman Hill. Annual precipitation is 40 to 90 inches and occurs predominantly as rain. The general aspect is southwest and south. Most of the WAU is within the western hemlock zone where late seral stages (climax species) are dominated by western hemlock and western redcedar and early seral stages (pioneering species) are primarily Douglas fir and hardwood. Upper elevations (greater than 3000 feet) are dominated by western hemlock and Pacific silver fir. Ages in the WAU are 1 to 90 years. The south flank of Lyman Hill contains numerous large hardwood stands, primarily of red alder, black cottonwood and bigleaf maple.
- 2)

Identify any difference between the proposal location and the general description of the WAU or sub-basin(s).

The proposal location is typical of the lower elevations within the WAU.

- b.

What is the steepest slope on the site (approximate percent slope)?

60% slope on about 25% of the site.
- c.

What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland. *Note: The following table is created from state soil survey data. It is a roll-up of general soils information for the soils found in the entire sale area. It is only one of several site assessment tools used in conjunction with actual site inspections for slope stability concerns or erosion potential. It can help indicate potential for shallow, rapid soil movement, but often does not represent deeper soil sub-strata. The actual soils conditions in the sale area may vary considerably based on land-form shapes, presence of erosive situations, and other factors. The state soil survey is a compilation of various surveys with different standards.*

State Soil Survey #	Soil Texture	% Slope	Acres	Mass Wasting Potential	Erosion Potential
8724	Very gravelly loam	30-65%	23	Medium	Medium
8722	Very gravelly loam	0-15%	20	Insignificant	Low
4790	Very gravelly loam	30-65%	1	Low	Medium
8723	Very gravelly loam	15-30%	1	Insignificant	Low

- d.

Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

Yes.

1)

Surface indications: The entire proposal area is located on a very old deep-seated landslide that occurred sometime before old-growth stands were established on the site. More recent landslides have occurred on this older slide in the vicinity of the proposal. The following descriptions of these landslides were formulated from a combination of field observations and aerial photo interpretation. These landslides include: at least 3 small (< 1ac) landslides within the inner gorge of Hansen Creek that are within the RMZ for this proposal; one landslide about ½ to ¾ acre in size in the inner gorge of the type 4 stream that forms the western boundary of the harvest unit that is within the RMZ for this proposal; a landslide about 2-3 acres in size along the type 4 stream that divides the harvest unit into 2 separate units (this slide originated on private land to the north of the proposed harvest unit and deposited in the RMZ within the harvest unit) ; a landslide about 3-5 acres in size that occurred on the head scarp of the ancient deep-seated slide and deposited into Hansen Creek about 400-500’ to the east of the NE corner of the harvest unit; 2 small slumps less than ¼ acre in size along the type 5 stream that flows into the harvest unit from the NE; a slump < ¼ acre in size about 200’ to the west of the type 4 stream that divides the harvest unit into 2 separate parts; at least 3 debris flows associated with type 5 streams on the head scarp of the deep-seated slide. These debris flows are about 500’-1000’ long. 2 of them end just to the north (uphill) of the northern harvest unit boundary, and the other one ends about 300-400 feet to the NE (uphill) from the NE corner of the harvest unit. There is one last landslide along the eastern side of one of the type 5 streams with a debris flow. It is located about 500-600’ to the north (uphill) from the harvest unit.

2)

Is there evidence of natural slope failures in the sub-basin(s)?

☐No ☒Yes, type of failures (shallow vs. deep-seated) and failure site characteristics:

The Hansen Creek Watershed Analysis indicates there are 221 areas of mass wasting. This analysis states:

“ Mass wasting events are limited to that portion of the WAU north of State Highway 20. Inventoried failures occurred across all elevation zones (500 foot increments) and in all sub-basins. Nearly 80% of all inventoried failures occurred in three landforms: inner gorges, incised stream channels, and glacial terrace escarpments, all of which are sensitive to forest management activities. Failures also seem more numerous in convergent, concave topography at mid- to upper-elevations of sub-basins affected by large, ancient failures...”

“ Failures are common throughout the mountainous portion of the watershed on over-steepened inner gorge areas and along incised stream channels. Debris torrents typically originate in stream channels with gradients steeper than 20%...”

“Shallow-rapid landslides and debris torrents are the dominant mass wasting processes in the watershed. Nearly 95% of the inventoried failures involved shallow-rapid landslides and debris torrents. Other processes include sporadic deep-seated, gullying and stream channel destabilization. Large scale ancient failures involving bedrock and/or till affected significant portions of the middle to upper elevations of the watershed. However, the basic stability of these features does not appear to be affected by forest management activities.”

Five of the 221 slope failures inventoried by Watershed Analysis occurred in old-growth timber, and can be considered natural slope failures. Fifty-seven of the inventoried slope failures occurred in timber that was 50 years old or greater. Some of these failures may also be natural, but the watershed analysis did not make that determination

- 3) Are there slope failures in the sub-basin(s) associated with timber harvest activities or roads?
☐No ☒Yes, type of failures (shallow vs. deep-seated) and failure site characteristics:
Associated management activity:

Please see question B1d2 above.

The watershed analysis surmises that “... forest management activities have had an adverse effect on hill slope and stream channel stability. Two-thirds of all failures were either road related (27%) or associated spatially with other activities (39.5%) in areas harvested less than 50 years prior to failure.”

Since the majority (95%) of slope failures were shallow, it can be assumed that a very high majority of slope failures associated with harvest and road construction activities were shallow in nature.

The watershed analysis does not break down slope failures due to human activity by sub-basins.

- 4) Is the proposed site similar to sites where slope failures have occurred previously in the sub-basin(s)?
☐No ☒Yes, describe similarities between the conditions and activities on these sites:
The proposed site is located on a very old deep-seated landslide, and in the vicinity of where more recent landslides have occurred, but any areas that were determined to still be potentially unstable were excluded from the proposal.
- 5) Describe any slope stability protection measures (including sale boundary location, road, and harvest system decisions) incorporated into this proposal.
The proposal area was evaluated by the Department’s State Lands geologist/hydrologist as well as Forest Practice Forester and geologist. Any areas that were believed would be prone to landsliding if the timber were harvested were excluded from the harvest unit. Furthermore, an area of about 10-15 acres in size that potentially could be harvested was excluded from the harvest unit, because the road that would have to be built to access this area had the potential to cause cut-slope failures that could enter surface waters. Much of this area may be logged in the future by helicopter.

- e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.
Approx. acreage new roads:1.8 Approx. acreage new landings:0.5 Fill source: **Rock pits described in A.12.a**
- f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.
Yarding, rock and timber hauling, and road construction during periods of heavy rainfall could cause localized erosion. Any erosion should be contained on site.
- g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? Approximate percent of proposal in permanent road running surface (includes gravel roads):
.7% of the site will be covered with permanent gravel road.
- h. Propose measures to reduce or control erosion, or other impacts to the earth, if any:
(Include protection measures for minimizing compaction or rutting.)

The following timing restrictions will be applied to the project:

- ❖ No road construction, reconstruction, inactivation, or abandonment; or timber or rock haul will occur on existing or newly constructed roads from November 1 – March 31 unless the operator formulates an adequate plan to prevent erosion into surface waters.

The following strategies will be applied to proposed road construction/reconstruction/inactivation/abandonment:

- ❖ Any soils that are exposed by road work will be revegetated during the first available opportunity.
- ❖ On newly constructed roads cross-drain culverts will be adequate in size and frequency to prevent concentration of road runoff to the extent that it would cause gulying of stream drainages. Cross drain culverts will be placed in order to minimize the amount of ditch water that flows into surface waters. Rip-rap will be utilized at all culvert inlets and outlets to prevent erosion at these vulnerable points.
- ❖ Shot rock fill to be used at one type 5 stream crossing, adjusted sale boundaries to avoid additional road construction by requiring longer downhill yarding.

The following strategies will be applied to the proposed timber harvest:

- ❖ Riparian (RMZ) buffers as described in 3.a.1.b and c, will prevent erosion of stream banks and impacts to wetlands in the vicinity of the timber harvest.
- ❖ The lead end of the logs will be suspended when being yarded to avoid soil disturbance that could lead to concentration of run-off or erosion.

2. Air

- a. What types of emissions to the air would result from the proposal (i.e., dust from truck traffic, rock mining, crushing or hauling, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.
No emissions are anticipated other than minor amounts of equipment exhaust and road dust created by truck traffic.
- b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. **Does not apply.**
- c. Proposed measures to reduce or control emissions or other impacts to air, if any: **Dust will be abated during hauling on portion of the F-1000, ML-1000, Cruse Road and the MC-2000 Roads. Abatement treatment will be Lignin, water or a mixture of these.**

3. Water

- a. Surface:

- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into. (See timber sale map and forest practice base maps.)
Yes.
- a) Downstream water bodies: **All streams are tributary to Hansen Creek, which is tributary to the Skagit River.**
- b) Complete the following riparian & wetland management zone table:

Wetland, Stream, Lake, Pond, or Saltwater Name (if any)	Water Type	Number (how many?)	Avg RMZ/WMZ Width in Feet (per side for streams)
Hansen Creek	3	1	193'
Unnamed	4	2	100'
Unnamed	5	10	0-25'

- c) List RMZ/WMZ protection measures including silvicultural prescriptions, road-related RMZ/WMZ protection measures, and wind buffers.
No timber harvest will occur within the RMZ's with the exception of road construction. No wind buffer was placed on the type 3 stream because the stream runs parallel to the direction of the prevailing winds (southwest) and very little wind throw is present near the stream buffer.
- 2) Will the project require any work over, in, or adjacent to (within 200 feet) to the described waters? If yes, please describe and attach available plans.
☐No ☒Yes (See RMZ/WMZ table above and timber sale map.)
Description (include culverts): **Timber will not be harvested within 193' of the type 3 stream. Timber will be harvested within 100' of the 2 type 4 streams, except where the proposed new road construction crosses these streams where timber will be harvested immediately adjacent to these streams. Log stringer bridges will be constructed at both of these crossings.**

One of the type 5 streams will be crossed with the proposed new road construction. A 36" culvert and a shot rock fill will be utilized at this crossing. For about half of the length of this stream, timber harvest will only occur within about 25' of the stream. The unharvested area will be left in order to avoid harvest of potentially unstable slopes. Timber harvest will occur immediately adjacent to the rest of this stream since this area is not potentially unstable.

On another type 5 stream tributary to this one, timber harvest will only occur within 10-25' of the stream to avoid disturbing the banks of this stream. Timber harvest will occur immediately adjacent to the remainder of the type five streams. Some of the type five streams may be yarded over with cable systems. When this occurs, trees will be felled away from the streams, one end of the logs will be suspended, and yarding roads will be arranged so that they are not parallel to the stream channels in order to avoid excessive disturbance of the stream channels.

- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.
None. Culverts and bridges will be utilized at stream crossings so that no fill is actually placed into the stream channels.
- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. (Include diversions for fish-passage culvert installation.)
☒No ☐Yes, description:
- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.
☒No ☐Yes, describe location:
- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.
☒No ☐Yes, type and volume:
- 7) Does the sub-basin contain soils or terrain susceptible to surface erosion and/or mass wasting? What is the potential for eroded material to enter surface water?

The watershed analysis determined that most of the northeastern half of the sub-basin has a moderate soil erosion potential including all of the proposed harvest area. The watershed analysis also determined that the inner gorge of Hansen Creek has a high soil erosion potential where the creek flows through the proposed harvest unit.

The watershed analysis also determined that much of the northeastern half of the sub-basin is susceptible to mass wasting. A very large, deep-seated landslide occurred over much of this area sometime before the old-growth stands were established on the site. Many of the type 4 and 5 streams that flow through this area have incised channels and, as such, are susceptible to mass wasting and erosion. The inner gorge of Hansen Creek and 4 of its tributaries were determined by the watershed analysis to be susceptible to mass wasting.

Other areas that were determined by the watershed analysis to be susceptible to mass wasting include: about 300 acres of concave/convergent topography on the old deep-seated landslide, and about 20 acres of steep (>65%) ground near these concave/convergent areas. Due to the high density of streams in the sub-basin there is a high-potential for eroded material to enter surface waters from all of the areas of soil erosion and mass wasting potential discussed above.

- 8) *Is there evidence of changes to the channels in the WAU and sub-basin(s) due to surface erosion or mass wasting (accelerated aggradations, erosion, decrease in large organic debris (LOD), change in channel dimensions)?*
☐No ☒Yes, describe changes and possible causes:
The watershed analysis reports that shallow-rapid landslides and debris torrent have had the following impacts:
“Coarse and fine sediment from these mass-wasting events has led to bed aggradation, channel avulsion, and increased concentration of fine sediment in the stream bed in alluvial fans, moderate gradient plane-bed segments, and low-gradient pool-riffle segments. These effects are partially responsible for the reduction in the numbers and depths of pools for summer rearing. They also increase the lateral instability of the channel which may result in burial or dewatering of Coho salmon redds. ... Bed aggradation has also led to reduced flow capacity at bridges and culverts, especially at State Highway 20.”

These impacts have occurred in the Hansen Creek sub-basin, where this proposal is located, and throughout the rest of the WAU as well.
- 9) *Could this proposal affect water quality based on the answers to the questions 1-8 above?*
☒No ☐Yes, explain:
Slope stability protection measures discussed in B.1.h, and soil erosion protection measures discussed in B.1.d.5 should prevent effects to water quality impacts.
- 10) *What are the approximate road miles per square mile in the WAU and sub-basin(s)?*
The Department’s GIS database, dated November 4, 2003, reports that there are 4.2 road miles per square mile in the overall WAU and according to a report run on April 27, 2004 there are 4.7 road miles per square mile in the sub-basin.

Are you aware of areas where forest roads or road ditches intercept sub-surface flow and deliver surface water to streams, rather than back to the forest floor?
☒No ☐Yes, describe:
- 11) *Is the proposal within a significant rain-on-snow (ROS) zone? If not, **STOP HERE** and go to question B-3-a-13 below. Use the WAU or sub-basin(s) for the ROS percentage questions below.*
☒No ☐Yes, approximate percent of WAU in significant ROS zone.
Approximate percent of sub-basin(s):
- 12) *If the proposal is within the significant ROS zone, what is the approximate percentage of the WAU or sub-basin(s) within the significant ROS zone (all ownerships) that is (are) rated as hydrologically mature?*
Does not apply.
- 13) *Is there evidence of changes to channels associated with peak flows in the WAU or sub-basin(s)?*
☒No ☐Yes, describe observations:
The watershed analysis did not attribute changes in stream channels to peak flows.
- 14) *Based on your answers to questions B-3-a-10 through B-3-a-13 above, describe whether and how this proposal, in combination with other past, current, or reasonably foreseeable proposals in the WAU and sub-basin(s), may contribute to a peak flow impact.*
This proposal is not located in the significant rain-on-snow zone, and thus is not expected to contribute to a peak flow impact.
- 15) *Is there water resource (public, domestic, agricultural, hatchery, etc.), or area of slope instability, downstream or downslope of the proposed activity that could be affected by changes in surface water amounts, quality, or movements as a result of this proposal?*
☒No ☐Yes, possible impacts:
- 16) *Based on your answers to questions B-3-a-10 through B-3-a-15 above, note any protection measures addressing possible peak flow/flooding impacts.*
None.

b. Ground Water:

- 1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.
Channelized water through ditches and culverts emptying out onto the forest floor will increase surface saturation in localized areas, but is not expected to affect ground water.
- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.
Insignificant amounts of oil and lubricants could be inadvertently spilled as a result of heavy equipment use. No lubricants will be disposed of on site.
- 3) *Is there a water resource use (public, domestic, agricultural, hatchery, etc.), or area of slope instability, downstream or down slope of the proposed activity that could be affected by changes in groundwater amounts, timing, or movements as a result this proposal?*
☒No ☐Yes, describe:
a) *Note protection measures, if any.* **None.**

c. Water Runoff (including storm water):

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Storm water runoff will be collected by landings, road surfaces and ditches, then diverted through cross drain culverts onto the forest floor. Culverts will be placed to minimize the amount of ditch water entering existing streams.

- 2) Could waste materials enter ground or surface waters? If so, generally describe.
It is unlikely that any waste materials could enter any surface or ground water.

a) Note protection measures, if any. **None.**

- d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:
(See surface water, ground water, and water runoff sections above, questions B-3-a-1-c, B-3-a-16, B-3-b-3-a, and B-3-c-2-a.)
Please see question B.1.h.

4. Plants

- a. Check or circle plants types of vegetation found on the site:

☒deciduous tree: ☒alder, ☒maple, ☐aspen, ☒cottonwood, ☐western larch, ☒birch, ☒other: **bitter cherry**
☒evergreen tree: ☒Douglas fir, ☐grand fir, ☐Pacific silver fir, ☐ponderosa pine, ☐lodgepole pine,
☒western hemlock, ☐mountain hemlock, ☐Englemann spruce, ☐Sitka spruce,
☒red cedar, ☐yellow cedar, ☐other:
☒shrubs: ☐huckleberry, ☒salmonberry, ☐salal, ☒other: **sword fern**
☐grass
☐pasture
☐crop or grain
☒wet soil plants: ☐cattail, ☐buttercup, ☐bullrush, ☒skunk cabbage, ☒devil's club, ☐other:
☐water plants: ☐water lily, ☐eelgrass, ☐milfoil, ☐other:
☐other types of vegetation:
☐plant communities of concern:

- b. What kind and amount of vegetation will be removed or altered? (See answers to questions A-11-a, A-11-b, B-3-a-1-b and B-3-a-1-c. The following sub-questions merely supplement those answers.)

Approximately 991 MBF of timber will be removed. The majority of this will be hardwoods (red alder, black cottonwood, bigleaf maple, paper birch, and bitter cherry). A small amount of conifer timber (Douglas fir, western hemlock, and western redcedar) will be removed. Understory vegetation will be disturbed, but is expected to remain present on the site.

- 1) Describe the species, age, and structural diversity of the timber types immediately adjacent to the removal area. (See landscape/WAU and adjacency maps on the DNR website at: <http://www.dnr.wa.gov> under "SEPA Center.")

To the north is an approximately 50 acre hardwood stand similar in composition to the proposal area that is currently being harvested. To the southeast is the RMZ along Hansen Creek, which is about 300' wide and consists mostly of a 67 year old naturally regenerated second-growth conifer stand with some patches of hardwoods. Beyond the RMZ on the opposite side of Hansen Creek is a 16 year old Douglas fir plantation that is 31 acres in size. To the east is a naturally regenerated second-growth mixed hardwood/conifer stand that is similar in composition to the proposed harvest area. It is about 60-70 acres in size. To the southwest along the southern half of the unit is the RMZ for a type 4 creek which is 300-400' wide and is similar in composition to the proposed harvest area. Beyond the RMZ is a 16-acre Douglas fir stand that is 8 years old. To the west along the northern half of the unit is an approximately 10-year-old Douglas fir stand that is about 100 acres in size.

- 2) Retention tree plan:
A total of 419 dominant and co-dominant trees will be left in 11 clumps that are distributed across the proposed harvest area. Numerous smaller trees, mostly western hemlock and western redcedar < 12" dbh will also be left in these clumps, but were not counted in the total of 419 trees. These clumps were located around features that will contribute to the maintenance of biological diversity such as snags, down logs, areas with extensive understory development, and large wind firm conifer trees. Also, one clump was placed around an active red-tail hawk nest.

- c. List threatened or endangered plant species known to be on or near the site.

The Department's TRAX database did not indicate any.

- d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

The proposed harvest area will be planted with conifer seedlings within 2 years of harvest. Please see B.4.b.2 for green tree retention plan.

5. Animal

- a. Circle or check any birds animals or unique habitats which have been observed on or near the site or are known to be on or near the site:

birds: ☐hawk, ☐heron, ☐eagle, ☐songbirds, ☐pigeon, ☒other: **barred owl, pileated woodpecker, red-breasted sapsucker, red-tail hawk, winter wren.**
mammals: ☒deer, ☐bear, ☒elk, ☐beaver, ☐other:
fish: ☐bass, ☒salmon, ☒trout, ☐herring, ☐shellfish, ☐other:
unique habitats: ☐talus slopes, ☐caves, ☐cliffs, ☐oak woodlands, ☐balds, ☐mineral springs

- b. List any threatened or endangered species known to be on or near the site (include federal- and state-listed species).

- c. Is the site part of a migration route? If so, explain.

☒Pacific flyway

☐Other migration route:

Explain if any boxes checked:

All of Washington State is considered part of the Pacific Flyway. No impacts are anticipated as a result of this proposal being completed

- d. Proposed measures to preserve or enhance wildlife, if any:

- 1) *Note existing or proposed protection measures, if any, for the complete proposal described in question A-11.*

Species /Habitat: **Fish Habitat**

Protection Measures: **see B.1.d.5, B.1.h, B.3.a.1.b,c.**

Species /Habitat: **Mature Forest Components**

Protection Measures: **see B.4.2**

Species /Habitat: **Red-tail Hawk nest**

Protection Measures: **see B.4.2**

6. Energy and Natural Resources

- a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.
Does not apply.
- b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.
No.
- c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:
Does not apply.

7. Environmental Health

- a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.
Does not apply.
- 1) Describe special emergency services that might be required.
Does not apply.
- 2) Proposed measures to reduce or control environmental health hazards, if any:
Does not apply.
- b. Noise
- 1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?
Does not apply.
- 2) What types and levels of noise would be created by or associated with the project on a short-term or long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from this site.
Noise from log trucks and logging equipment will be present while operating during daylight hours
- 3) Proposed measures to reduce or control noise impacts, if any:
None.

8. Land and Shoreline Use

- a. What is the current use of the site and adjacent properties? (*Site includes the complete proposal, e.g. rock pits and access roads.*)
Timber management.
- b. Has the site been used for agriculture? If so, describe.
No.
- c. Describe any structures on the site.
None.
- d. Will any structures be demolished? If so, what?
No.
- e. What is the current zoning classification of the site?
Industrial forestry.
- f. What is the current comprehensive plan designation of the site?
Industrial forestry.
- g. If applicable, what is the current shoreline master program designation of the site?
Does not apply.
- h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.
No.
- i. Approximately how many people would reside or work in the completed project?
Does not apply.
- j. Approximately how many people would the completed project displace?
Does not apply.
- k. Proposed measures to avoid or reduce displacement impacts, if any:
Does not apply.
- l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:
The design of this project is consistent with current comprehensive plans and zoning regulations.

9. Housing

- a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.
Does not apply.
- b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.
Does not apply.
- c. Proposed measures to reduce or control housing impacts, if any:
Does not apply.

10. Aesthetics

- a. What is the tallest height of any proposed structure(s), not including antennas; what is the principle exterior building material(s) proposed?
Does not apply.
- b. What views in the immediate vicinity would be altered or obstructed?
Approximately 46 acres of hardwood forest will be harvested.

- 1) *Is this proposal visible from a residential area, town, city, developed recreation site, or a scenic vista?*
☐ No ☒ Yes, viewing location: **The proposal is visible from the town of Sedro-Woolley and a few outlying areas.**
 - 2) *Is this proposal visible from a major transportation or designated scenic corridor (county road, state or interstate highway, US route, river, or Columbia Gorge SMA)?*
☐ No ☒ Yes, scenic corridor name: **The proposal is visible from State Highway 20 and from I-5.**
 - 3) *How will this proposal affect any views described in 1) or 2) above?*
This proposal would harvest about 46 acres of forest in an area that has already been heavily harvested, so it is not expected to have a noticeable impact on the viewshed.
- c. Proposed measures to reduce or control aesthetic impacts, if any:
RMZ's as described in B.3.a.2 and leave tree clumps as described in B.4.2 will reduce the aesthetic impact.

11. Light and Glare

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur?
Does not apply.
- b. Could light or glare from the finished project be a safety hazard or interfere with views?
Does not apply.
- c. What existing off-site sources of light or glare may affect your proposal?
Does not apply.
- d. Proposed measures to reduce or control light and glare impacts, if any:
Does not apply.

12. Recreation

- a. What designated and informal recreational opportunities are in the immediate vicinity?
None known.
- b. Would the proposed project displace any existing recreational uses? If so, describe:
The proposal would not displace any known recreational uses.
- c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:
None.

13. Historic and Cultural Preservation

- a. Are there any places or objects listed on, or proposed for national, state, or local preservation registers known to be on or next to the site? If so, generally describe.
The Department's TRAX database does not indicate any such sites.
- b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.
None known.
- c. Proposed measures to reduce or control impacts, if any:
(Include all meetings or consultations with tribes, archaeologists, anthropologists or other authorities.)
The cultural departments of the Nooksack and Lummi Tribes were notified of the proposal so that they would have an opportunity to notify the Department of any known cultural or archeological sites.

14. Transportation

- a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.
 - 1) *Is it likely that this proposal will contribute to an existing safety, noise, dust, maintenance, or other transportation impact problem(s)?*
No.
- b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?
Does not apply.
- c. How many parking spaces would the completed project have? How many would the project eliminate?
Does not apply.
- d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).
See A.11 for a summary of proposed new road construction. See road plan for complete details.
 - 1) *How does this proposal impact the overall transportation system/circulation in the surrounding area, if at all?*
No noticeable impact is expected.
- e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.
Does not apply.
- f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.
Does not apply.
- g. Proposed measures to reduce or control transportation impacts, if any:
None.

15. Public Services

- a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.
No.
- b. Proposed measures to reduce or control direct impacts on public services, if any.
None.

16. Utilities

- a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other. **Does not apply.**

- b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.
Does not apply.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Completed by: _____ Title _____ Date: _____